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The United States of America



The Commissioner of Patents and Trademarks

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person or persons having title to this patent the right to exclude others from making, using or selling the invention throughout the United States of America for the term of seventeen years from the date of this patent, subject to the payment of maintenance fees as provided by law.



Commissioner of Patents and Trademarks



Attest



US005494036A

United States Patent [19]

Uber, III et al.

[11] Patent Number: 5,494,036
[45] Date of Patent: Feb. 27, 1996

[54] PATIENT INFUSION SYSTEM FOR USE WITH MRI

[75] Inventors: Arthur E. Uber, III, Pittsburgh; Seid Waddell, Sarver; John Stulen; Jon E. Manley, both of Pittsburgh, all of Pa.

[73] Assignee: Medrad, Inc., Indianola, Pa.

[21] Appl. No.: 158,055

[22] Filed: Nov. 26, 1993

[51] Int. Cl.⁶ A61B 6/00

[52] U.S. Cl. 128/655; 128/DIG. 1;
604/154; 604/131

[58] Field of Search 128/653.2, 654,
128/655, DIG. 1, DIG. 12; 604/65-67,
27, 890.1, 131, 154, 134

[56] References Cited

U.S. PATENT DOCUMENTS

3,523,523 8/1970 Reich et al. 128/655
3,812,843 5/1974 Wootten et al. 128/655
4,502,488 3/1985 Degironimo et al. 604/246 X
4,695,271 9/1987 Goethel 604/154 X

4,981,137 1/1991 Kondo et al.
5,134,373 7/1992 Tsuruno et al.
5,300,031 4/1994 Neer et al. 128/655 X

FOREIGN PATENT DOCUMENTS

105550A1 9/1983 European Pat. Off.
518100A1 5/1992 European Pat. Off.
495287A3 6/1992 European Pat. Off.

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[57] ABSTRACT

This invention relates generally to the field of Magnetic Resonance Imaging (MRI) systems for generating diagnostic images of a patient's internal organs and more particularly, this invention relates to improved MRI systems with decreased interference between the magnetic field used for producing diagnostic images and the magnetic fields generated by the electric motors used for driving the pistons of the contrast media injectors. Additionally, the system employs an improved communication link between an externally located system controller and the injection head control unit located within the electromagnetic isolation barrier which defines the magnetic imaging room.

23 Claims, 2 Drawing Sheets

